ANSWER 19 OF 20 MEDLINE on STN
AN 83199607 MEDLINE
DN PubMed ID: 6845815
TI Long term cultures of neural retina and pigment epithelium from newborn rabbits.
AU Tsukamoto T; Ludwig H
SO Zeitschrift fur Naturforschung. Section C: Biosciences, (1983 Jan-Feb) Vol. 38, No. 1-2, pp. 141-5.
Journal code: 7801143. ISSN: 0341-0382.
CY GERMANY, WEST: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
LA English
FS Priority Journals
EM 198306
ED Entered STN: 18 Mar 1990
Last Updated on STN: 3 Mar 2000
Entered Medline: 10 Jun 1983
AB In vitro cultures of neural retina, obtained after dispersion and trypsinization of tissue fragments, were composed of 3 morphologically distinct types of neural cells, as demonstrated by silver impregnation. They resembled ganglion or receptor cells, horizontal or amacrine cells, and bipolar cells of the intact retina. Pigment epithelium was cultured without trypsinization. Both kinds of techniques may prove helpful for long term experiments in neurobiology and neurovirology.

ANSWER 19 OF 39 MEDLINE on STN

AN 2001276304 MEDLINE

DN PubMed ID: 11359881

TI Effects of insulin-like growth factor-1 on retinal endothelial cell glucose transport and proliferation.

AU DeBosch B J; Baur E; Deo B K; Hiraoka M; Kumagai A K

CS Department of Internal Medicine, Michigan Diabetes Research and Training Center, Ann Arbor, Michigan, USA.

NC K08 EY000369 (NEI)
RPO60DK-20572 (NIDDK)

SO Journal of neurochemistry, (2001 May) Vol. 77, No. 4, pp. 1157-67.
Journal code: 2985190R. ISSN: 0022-3042.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)

LA English

FS Priority Journals

EM 200106

ED Entered STN: 25 Jun 2001
Last Updated on STN: 19 Dec 2002
Entered Medline: 21 Jun 2001

AB Insulin-like growth factor-1 (IGF-1) plays important roles in the developing and mature retina and in pathological states characterized by retinal neovascularization, such as diabetic retinopathy. The effects of IGF-1 on glucose transport and proliferation and the signal transduction pathways underlying these effects were studied in a primary bovine retinal endothelial cell (BREC) culture model. IGF-1 stimulated uptake of the glucose analog 2-deoxyglucose in a dose-dependent manner, with a maximal uptake at 25 ng/mL (3.3 nM) after 24 h. Increased transport occurred in the absence of an increase in total cellular GLUT1 transcript or protein. IGF-1 stimulated activity of both protein kinase C (PKC) and phosphatidylinositol-3 kinase (PI3 kinase), and both pathways were required for IGF-1-mediated BREC glucose transport and thymidine incorporation. Use of a selective inhibitor of the beta isoform of PKC, LY379196, revealed that IGF-1 stimulation of glucose transport was mediated by PKC-beta; however, inhibition of PKC-beta had no effect on BREC proliferation. Taken together, these data suggest that the actions of IGF-1 in retinal endothelial cells couple proliferation with delivery of glucose, an essential metabolic substrate. The present studies extend our general understanding of the effects of IGF-1 on vital cellular activities within the retina in normal physiology and in pathological states such as diabetic retinopathy.

ANSWER 17 OF 20 MEDLINE on STN

AN 87002420 MEDLINE

DN PubMed ID: 3757017

TI An ultrastructural study of embryonic chick retinal neurons in culture.

AU Bird M M

SO Cell and tissue research, (1986) Vol. 245, No. 3, pp. 563-77. Journal code: 0417625. ISSN: 0302-766X.

CY GERMANY, WEST: Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)

LA English

FS Priority Journals

EM 198611

ED Entered STN: 2 Mar 1990
Last Updated on STN: 3 Feb 1997
Entered Medline: 20 Nov 1986

AB The differentiation of cells and synapses in explants of 9-day-old chick embryo retina has been studied by light and electron microscopy over a period of 35 days in vitro, and samples of retina from the 9-day chick foetus were directly fixed and prepared for study. At the time of explantation the retinae were poorly differentiated and no lamination was apparent. From day 14 onwards, outer and inner nuclear layers (ONL, INL) separated by a layer of neuropil corresponding to the outer plexiform layer (OPL) and a layer of scattered large ganglion cells separated from the INL by a zone of neuropil resembling the inner plexiform layer (IPL) were apparent, and a well-differentiated outer limiting membrane was established close to the surface of the explants. In the oldest cultures some development of photoreceptor outer segments occurred but a distinct optic nerve fibre layer did not form. Although cell identification presented problems even in the oldest cultures, the major retinal cell types described in vivo could be identified. Photoreceptor cells developed pedicles in the OPL which became filled with synaptic vesicles and synaptic ribbons and established ribbon synapses (including triads) with and were commonly invaginated by processes from horizontal and bipolar cells.
Processes of bipolar cells in the IPL formed simple and dyad synapses. At least two types of presynaptic amacrine cells were also identified in the INL, one of which contained large numbers of dense-core vesicles. The ganglion cells, though sparse, were large and well differentiated. These findings show that all the major neuronal types of the retina are capable of developing and differentiating in vitro, lagging behind the time-table of development and differentiation in vivo by approximately 7 days, but resulting in a histotypically organised retina with synaptic neuropil showing many similarities to the corresponding neuropil in vivo.

ANSWER 16 OF 20 MEDLINE on STN

AN 87027473 MEDLINE

DN PubMed ID: 3533211

TI Identification and characterization of cell types in monolayer cultures of rat retina using monoclonal antibodies.

AU Akagawa K; Barnstable C J

NC EY 05206 (NEI)
NS 20483 (NINDS)

SO Brain research, (1986 Sep 24) Vol. 383, No. 1-2, pp. 110-20.
Journal code: 0045503. ISSN: 0006-8993.

CY Netherlands

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)

LA English

FS Priority Journals

EM 198612

ED Entered STN: 2 Mar 1990
Last Updated on STN: 3 Feb 1997
Entered Medline: 10 Dec 1986

AB This study describes the identification and differentiation of neonatal rat retinal cells in monolayer cultures. A panel of monoclonal antibodies was used as a molecular probe of both cell type and developmental stage. Previously described cell-type specific monoclonal antibodies were used to label rod photoreceptors, horizontal cells, amacrine cells or ganglion cells. Two new antibodies that react with rat retina are described. The first, RET-G7, reacts with a cytoplasmic antigen of Muller glia, astrocytes and some horizontal cells. The second, RET-B2, reacts with bipolar cells and photoreceptor inner segments. Two main findings are presented. The first is that each of the major subclasses of retinal neurons have been unambiguously identified in these cultures. The morphology of some subclasses was very characteristic. All photoreceptors, as defined by reactivity with antibody RET-P1, were small spherical cells with one or fewer processes. Horizontal cells, as defined by reactivity with antibody B-1, were large with a characteristic multipolar network of processes. Bipolar and amacrine cells, on the other hand, were of similar size and could only be distinguished on the basis of immunocytochemical labeling. The second finding is that while RET-B2 antigen appeared on bipolar and photoreceptor cells after about 5 days in culture, several Muller cell and photoreceptor antigens were not expressed in monolayer cultures. The results suggest that the expression of some molecules in culture is the result of properties intrinsic to the cells whereas expression of others depends upon extrinsic factors or cell interactions that may not be present in monolayer cultures.

90166554 MEDLINE
DN PubMed ID: 3272187
TI Growth and synapse formation among major classes of adult salamander retinal neurons in vitro.
AU MacLeish P R; Townes-Anderson E
CS Laboratory of Neurobiology, Rockefeller University, New York, New York 10021-6399.
NC EY05201 (NEI)
EY06135 (NEI)
SO Neuron, (1988 Oct) Vol. 1, No. 8, pp. 751-60.
Journal code: 8809320. ISSN: 0896-6273.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LA English
FS Priority Journals
EM 199004
ED Entered STN: 1 Jun 1990
Last Updated on STN: 3 Feb 1997
Entered Medline: 6 Apr 1990
AB Adult neurons, isolated from the salamander retina, were maintained in low-density cell culture and examined for synapse formation by electrophysiological and electron microscopic techniques. Morphologically identifiable rod, cone, horizontal, bipolar, and amacrine/ganglion cells survived for many months, grew processes, and formed numerous cell contacts. Intracellular recordings showed the presence of a variety of voltage- and time-dependent conductances and both electrical and chemical transmission among these cells. At the ultrastructural level, gap junctions, monad ribbon synapses, and conventional synapses, like those present in the intact retina, were observed in sibling cultures. Thus, all major classes of adult retinal neurons, in addition to ganglion cells, are able to regenerate processes and reform synapses. The regenerated synaptic contacts are functional and structurally diverse.

ANSWER 13 OF 20 MEDLINE on STN
AN 95001677 MEDLINE
DN PubMed ID: 7918215
TI Diversity of neuronal phenotypes expressed in monolayer cultures from immature rabbit retina.
AU Mockel V; Lohrke S; Hofmann H D
CS Max-Planck-Institut fur Hirnforschung, Frankfurt, Germany.
SO Visual neuroscience, (1994 Jul-Aug) Vol. 11, No. 4, pp. 629-42. Journal code: 8809466. ISSN: 0952-5238.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)
LA English
FS Priority Journals
EM 199410
ED Entered STN: 22 Dec 1994
Last Updated on STN: 22 Dec 1994
Entered Medline: 27 Oct 1994
AB We have used monolayer cultures prepared from early postnatal rabbit retinae (days 2-5) by the sandwich technique to study the capacity of immature neurons to express specific neuronal phenotypes in a homogeneous in vitro environment. Applying morphological, immunocytochemical, and autoradiographic criteria, we demonstrate that a variety of phenotypes could be distinguished after 7-14 days in vitro, and correlated with known retinal cell types. Bipolar cell-like neurons (approximately 4% of total cell number) were identified by cell type-specific monoclonal antibodies (115A10) and their characteristic bipolar morphology. Small subpopulations (about 1%) of GABA-immunoreactive neurons acquired elaborate morphologies strikingly similar to those of A- and B-type horizontal cells. Amongst putative amacrine cells several different subpopulations could be classified. GABA-immunoreactive amacrine-like neurons (6.5%), which also showed high affinity [3H]-GABA uptake, comprised cells of varying size and shape and could be subdivided into subpopulations with respect to their response to different glutamate receptor agonists (NMDA, kainic acid, quisqualic acid). In addition, a small percentage of [3H]-GABA accumulating cells with large dendritic fields showed tyrosine-hydroxylase immunoreactivity. Presumptive glycinergic amacrine cells (18.5%) were rather uniform in shape and had small dendritic fields. Release of [3H]-glycine from these neurons was evoked by kainic and quisqualic acid but not by NMDA. Small [3H]-glutamate accumulating neurons with few short processes were the most frequent cell type (73%). This cell type also exhibited opsin immunoreactivity and probably represented incompletely differentiated photoreceptor cells. Summing the numbers of characterized cells indicated that we were able to attribute a defined retinal phenotype to most, if not all of the cultured neurons. Thus, we have demonstrated that immature neuronal cells growing in monolayer cultures, in the absence of a structured environment, are capable of maintaining or producing specific morphological and functional properties corresponding to those expressed in vivo. These results stress the importance of intrinsic factors for the regulation of neuronal differentiation. On the other hand, morphological differentiation was far from perfect indicating the requirement for regulatory factors.

ANSWER 3 OF 5 MEDLINE on STN

AN 1999043340 MEDLINE

DN PubMed ID: 9827638

TI Immunocytochemical characterisation of proteins secreted by retinal pigment epithelium in retinas of normal and Royal College of Surgeons dystrophic rats.

AU Sheedlo H J; Turner J E

CS Department of Anatomy and Cell Biology, North Texas Eye Research Institute, University of North Texas Health Science Center, Fort Worth 76107, USA.

SO Journal of anatomy, (1998 Aug) Vol. 193 (Pt 2), pp. 223-32.
Journal code: 0137162. ISSN: 0021-8782.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199901

ED Entered STN: 9 Feb 1999
Last Updated on STN: 9 Feb 1999
Entered Medline: 25 Jan 1999

AB In a previous study, an antigen consisting of proteins secreted by retinal pigment epithelial (RPE) cells was injected into a sheep and the specificity of the resulting antiserum was shown by Western blotting and its effects on retinal development were determined in vitro and in vivo. In the present study, the distribution of these secreted proteins was determined by light microscopy immunocytochemistry in cultured neonatal rat RPE cells and retinas of normal and Royal College of Surgeons (RCS) dystrophic rats and cerebrum of normal adult rats. Immunolabelling for these RPE-secreted proteins was detected in cytoplasmic vesicles surrounding nuclei and within processes of cultured normal and transformed rat RPE. In retinas of late postnatal and adult rats, dense immunostaining was found in the cytoplasm of RPE cells and ganglion cell bodies. In addition to RPE and ganglion cells, scattered photoreceptors within the thin outer nuclear layer and small structures within the debris zone were also densely immunoreactive in retinas of 2-mo-old RCS dystrophic rats. The numbers of immunostained ganglion cells appeared to decrease in retinas of older RCS rats, although the immunoreactivity within the RPE appeared to increase in density. No other neuron within the retina, i.e. bipolar, amacrine or horizontal, was immunoreactive for RPE-secreted proteins. In the cerebral cortex of adult rats, immunoreactivity for RPE-secreted proteins was primarily detected within large perikarya of pyramidal neurons and smaller granule neurons. In conclusion, we report an immunocytochemical analysis of an antiserum raised against secreted proteins of rat RPE. This antiserum recognised proteins within secretory-like vesicles of cultured neonatal normal and transformed rat RPE and showed a specificity for RPE and ganglion cells in normal rat retinas, that appeared to be developmentally regulated, and neuron perikarya in adult rat cerebrum.

ANSWER 109 OF 239 MEDLINE on STN

AN 97107689 MEDLINE

DN PubMed ID: 8950429

TI Feline ocular epithelial response to growth factors in vitro.

AU Wong C J; Peiffer R L; Oglesbee S; Osborne C

CS Department of Ophthalmology, School of Medicine, University of North Carolina, Chapel Hill 27599-7040, USA.

SO American journal of veterinary research, (1996 Dec) Vol. 57, No. 12, pp. 1748-52.
Journal code: 0375011. ISSN: 0002-9645.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)

LA English

FS Priority Journals

EM 199703

ED Entered STN: 13 Mar 1997
Last Updated on STN: 3 Mar 2000
Entered Medline: 3 Mar 1997

AB OBJECTIVE: To examine the proliferative abilities of growth factors known to participate in wound healing on feline lens, iris pigment, ciliary, and retinal pigment epithelium cultured in vitro. ANIMALS: 8 clinically normal cats. PROCEDURE: Iris pigment, lens, ciliary, and retinal pigment epithelia of normal eyes of cats were isolated and cultured. Morphologic characteristics of primary cell cultures were studied by light and electron microscopy. Subcultures of epithelial cells were exposed to media supplemented with 0.5% fetal bovine serum plus various combinations of insulin and/or growth factors, including transforming growth factor-alpha, epidermal growth factor, acidic fibroblast growth factor, and basic fibroblast growth factor. Growth promoting effects were evaluated by counting with an electronic cell counter. RESULTS: Cells retained many of the morphologic characteristics of in vivo cells. Cell proliferation assays indicated that transforming growth factor-alpha stimulated lens and ciliary epithelial cell growth, and epidermal growth factor enhanced lens and iris pigment epithelial cell growth. Acidic fibroblast growth factor had proliferative effects on lens, iris pigment, and ciliary epithelium. Basic fibroblast growth factor was the most potent stimulator of all mitogens used, and caused substantial proliferation in all cell types. Insulin alone stimulated lens and ciliary epithelial proliferation but, combined with other growth factors, had a synergistic effect with those causing cell proliferation, except acidic fibroblast growth factor with iris pigment epithelium. CONCLUSION: Morphologic studies support the argument that pigment-producing cells are involved in feline ocular sarcoma. Growth factor studies indicated that ciliary epithelium has the most profound proliferative effect of all growth factors used. These data may help guide future studies in determining the cell of origin for feline ocular sarcoma.

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ANSWER 25 OF 33 MEDLINE on STN
AN 97132035 MEDLINE
DN PubMed ID: 8977492
TI Gene expression of the neurotrophic pigment epithelium-derived factor in the human ciliary epithelium. Synthesis and secretion into the aqueous humor.
AU Ortego J; Escribano J; Becerra S P; Coca-Prados M
CS Department of Ophthalmology and Visual Science, Yale University School of Medicine, New Haven, Connecticut 06510, USA.
NC EY00785 (NEI)
EY04873 (NEI)
SO Investigative ophthalmology & visual science, (1996 Dec) Vol. 37, No. 13, pp. 2759-67.
Journal code: 7703701. ISSN: 0146-0404.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LA English
FS Priority Journals
EM 199701
ED Entered STN: 28 Jan 1997
Last Updated on STN: 28 Jan 1997
Entered Medline: 8 Jan 1997
AB PURPOSE: To study the expression of the neurotrophic pigment epithelium-derived factor (PEDF), a protein with neurotrophic and neuronal-survival activities, by the human ocular ciliary epithelium. METHODS: Total RNA extracted from human and bovine ocular tissues were screened by Northern blot analysis with cDNA probes for PEDF. Antibodies to PEDF were used to monitor its synthesis and secretion by metabolically labeling ciliary processes in vitro with 35S-methionine, followed by immunoprecipitation. Pigment epithelium-derived factor antibodies also were used to visualize the cellular distribution of PEDF along the human and bovine ciliary epithelium. Polymerase chain reaction (PCR) and reverse transcription (RT)-PCR was used to screen cDNA libraries of tissue and cell lines derived from the ciliary epithelium to demonstrate PEDF expression. RESULTS: From a subtractive library of the human ocular ciliary body, the authors identified a cDNA clone exhibiting nucleotide homology with the PEDF. Northern blot analysis indicated that PEDF transcripts are present in all the ocular tissues in the human eye; in the bovine eye, it is expressed preferentially in the retinal pigment epithelium. RT-PCR and PCR demonstrated that the PEDF gene is still transcriptionally active in cultured cell lines derived from the bilayer of the ciliary epithelium.
Immunoprecipitation and Western blot (immunoblot) analyses with antisera to the PEDF protein demonstrated that a predominant PEDF form of 46 kDa is synthesized in the ciliary body and is secreted as a glycoprotein of 50 kDa. By indirect immunofluorescence and immunocytochemistry, PEDF antibodies decorated both cell types that comprise the ciliary epithelium (nonpigmented and pigmented) and, more distinctively, the plasma-membrane domain of nonpigmented cells in the pars plicata region. CONCLUSIONS: These results reveal a new site of synthesis (ciliary epithelium) and accumulation (aqueous humor) of PEDF, and they emphasize its potential importance as a trophic factor in the neuro-differentiated functions of the human ciliary epithelium.

ANSWER 22 OF 39 MEDLINE on STN

AN 1998407953 MEDLINE

DN PubMed ID: 9735358

TI A role for the fibroblast growth factor receptor in cell fate decisions in the developing vertebrate retina.

AU McFarlane S; Zuber M E; Holt C E

CS Department of Cell Biology and Anatomy, Neuroscience Research Group, HMRB Room 171, University of Calgary, Calgary, Alberta, Canada, T2N 4N1.. smcfarla@acs.ucalgary.ca

NC 5 T32NS07220-15 (NINDS)
NS27380 (NINDS)

SO Development (Cambridge, England), (1998 Oct) Vol. 125, No. 20, pp. 3967-75.
Journal code: 8701744. ISSN: 0950-1991.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)

LA English

FS Priority Journals

EM 199812

ED Entered STN: 15 Jan 1999
Last Updated on STN: 15 Jan 1999
Entered Medline: 14 Dec 1998

AB The mature vertebrate retina contains seven major cell types that develop from an apparently homogenous population of precursor cells. Clonal analyses have suggested that environmental influences play a major role in specifying retinal cell identity. Fibroblast growth factor-2 is present in the developing retina and regulates the survival, proliferation and differentiation of developing retinal cells in culture. Here we have tested whether fibroblast growth factor receptor signaling biases retinal cell fate decisions in vivo. Fibroblast growth factor receptors were inhibited in retinal precursors in Xenopus embryos by expressing a dominant negative form of the receptor, XFD. Dorsal animal blastomeres that give rise to the retina were injected with cDNA expression constructs for XFD and a control non-functional mutant receptor, D48, and the cell fates of transgene-expressing cells in the mature retina determined. Fibroblast growth factor receptor blockade results in almost a 50% loss of photoreceptors and amacrine cells, and a concurrent 3.5-fold increase in Muller glia, suggesting a shift towards a Muller cell fate in the absence of a fibroblast growth factor receptor signal. Inhibition of non-fibroblast-growth-factor-mediated receptor signaling with a third mutant receptor, HAVO, alters cell fate in an opposite manner. These results suggest that it is the balance of fibroblast growth factor and non-fibroblast growth factor ligand signals that influences retinal cell genesis.

ANSWER 23 OF 39 MEDLINE on STN

AN 1998297186 MEDLINE

DN PubMed ID: 9633530

TI Suppression of fibroblast growth factors 1 and 2 by antisense oligonucleotides in embryonic chick retinal cells in vitro inhibits neuronal differentiation and survival.

AU Desire L; Courtois Y; Jeanny J C

CS Developpement, vieillissement et pathologie de la retine, INSERM U. 450, affiliee CNRS, Paris, France.

SO Experimental cell research, (1998 May 25) Vol. 241, No. 1, pp. 210-21. Journal code: 0373226. ISSN: 0014-4827.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199807

ED Entered STN: 16 Jul 1998
Last Updated on STN: 16 Jul 1998
Entered Medline: 8 Jul 1998

AB As retinal histogenesis proceeds there is a pronounced increase in the expression of fibroblast growth factor (FGF), reaching its maximum in the mature retina and largely in terminal differentiated retinal neurons. Recent in vivo evidence suggests that exogenous FGF functions as a differentiation and survival factor for a wide variety of cell types including CNS neurons and that endogenous FGF may perform similar functions. We have examined the consequences of selectively and independently inhibiting FGF1 or FGF2 expression using antisense oligonucleotides in embryonic chick retinal cells, differentiating in vitro. Whether FGF1 or FGF2 expression was inhibited the results were the same: a marked reduction in neuronal photoreceptor cells differentiation, an increase in programmed cell death, but no effects on cell proliferation. Even although these two related factors promote the same final effect on retinal cells, namely, neuronal differentiation and survival, their normal combined activities or levels appear to be important in achieving this effect. Stimulation with either exogenous FGF1 or FGF2 served to increase endogenous levels of both FGF1 and FGF2 and reversed the effects of antisense blockade of either FGF1 or FGF2. Our data suggest that although other sources of FGF exist within the eye, the function of endogenous FGF in differentiating retinal neurons may be to stimulate their differentiation and promote their survival.

ANSWER 168 OF 220 MEDLINE on STN

AN 95219129 MEDLINE
DN PubMed ID: 7535629
TI Insulin and insulin-like growth factor system components gene expression in the chicken retina from early neurogenesis until late development and their effect on neuroepithelial cells.
AU de la Rosa E J; Bondy C A; Hernandez-Sanchez C; Wu X; Zhou J; Lopez-Carranza A; Scavo L M; de Pablo F
CS Developmental Endocrinology Branch, NICHD, NIH, Bethesda, MD 20892.
SO The European journal of neuroscience, (1994 Dec 1) Vol. 6, No. 12, pp. 1801-10.
Journal code: 8918110. ISSN: 0953-816X.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)
LA English
FS Priority Journals
EM 199505
ED Entered STN: 18 May 1995
Last Updated on STN: 3 Mar 2000
Entered Medline: 5 May 1995
AB To better understand the role of insulin-related growth factors in neural development, we have characterized by in situ hybridization in chicken embryonic retina the patterns of gene expression for insulin, insulin-like growth factor I (IGF-I), their respective receptors and the IGF binding protein 5 (IGFBP5) from early stages (E6) until late stages (E18)--an analysis not performed yet in any species. In addition, we studied the effect of insulin and IGF-I on cultured neuroepithelial cells. Insulin receptor mRNA and IGF-I receptor mRNA were both present and showed a similar, widespread pattern throughout retina development. Insulin mRNA could be detected only by reverse transcription coupled to polymerase chain reaction. IGF-I mRNA was concentrated in the ciliary processes and extraocular muscles early in development (embryonic day 6; E6) and in maturing retinal ganglion cells subsequently (E9-15). IGFBP5 mRNA was preferentially localized in the more differentiated central retinal zone and was maximally concentrated in the inner nuclear and ganglion cell layers at E9. These findings suggest a near constitutive expression of insulin receptor and IGF-I receptor genes, while IGF-I and IGFBP5 showed a highly focal spatiotemporal regulation of gene expression. Insulin and IGF-I, already at 10(-8) M, increased the proportion of PM1-positive neuroepithelial cells found in E5 retinal cultures without affecting significantly the total number of proliferating cells. Together, these data support the finding that, during early neurogenesis in chicken retina, insulin and IGF-I have a specific paracrine/autocrine action. This action, as well as possible effects elicited subsequently, may be dictated by restricted-local synthesis of the ligands and limited access to the factors contained in the vitreous humour. In the case of IGF's role, local IGFBPs expression can contribute to the fine modulation.

=>

ANSWER 27 OF 39 MEDLINE on STN

AN 97383277 MEDLINE

DN PubMed ID: 9236238

TI Sonic hedgehog promotes rod photoreceptor differentiation in mammalian retinal cells in vitro.

AU Levine E M; Roelink H; Turner J; Reh T A

CS Department of Biological Structure, University of Washington, Seattle, Washington 98195, USA.

NC EY 66056 (NEI)
R01 NS28308 (NINDS)

SO The Journal of neuroscience : the official journal of the Society for Neuroscience, (1997 Aug 15) Vol. 17, No. 16, pp. 6277-88.
Journal code: 8102140. ISSN: 0270-6474.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)

LA English

FS Priority Journals

EM 199708

ED Entered STN: 8 Sep 1997
Last Updated on STN: 8 Sep 1997
Entered Medline: 28 Aug 1997

AB The hedgehog gene family encodes secreted proteins important in many developmental patterning events in both vertebrates and invertebrates. In the Drosophila eye disk, hedgehog controls the progression of photoreceptor differentiation in the morphogenetic furrow. To investigate whether hedgehog proteins are also involved in the development of the vertebrate retina at stages of photoreceptor differentiation, we analyzed expression of the three known vertebrate hedgehog genes. We found that Sonic hedgehog and Desert hedgehog are expressed in the developing retina, albeit at very low levels, whereas Indian hedgehog (Ihh) is expressed in the developing and mature retinal pigmented epithelium, beginning at embryonic day 13. To determine whether hedgehog proteins have activities on developing retinal cells, we used an in vitro system in which much of retinal histogenesis is recapitulated. N-terminal recombinant Sonic Hedgehog protein (SHH-N) was added to rat retinal cultures for 3-12 d, and the numbers of retinal cells of various phenotypes were analyzed by immunohistochemistry. We found that SHH-N caused a transient increase in the number of retinal progenitor cells, and a 2- to 10-fold increase in the number of photoreceptors differentiating in the cultures when analyzed with three different photoreceptor-specific antigens. In contrast, the numbers of retinal ganglion cells and amacrine cells were similar to those in control cultures. These results show that Hedgehog proteins can regulate mitogenesis and photoreceptor differentiation in the vertebrate retina, and Ihh is a candidate factor from the pigmented epithelium to promote retinal progenitor proliferation and photoreceptor differentiation.

DNPL

ANSWER 24 OF 39 MEDLINE on STN

AN 1998239004 MEDLINE

DN PubMed ID: 9579401

TI Insulin-related growth factors stimulate proliferation of retinal progenitors in the goldfish.

AU Boucher S E; Hitchcock P F

CS The Neuroscience Program, The University of Michigan, Ann Arbor 48105, USA.

NC EY07003 (NEI)
EY07060 (NEI)

SO The Journal of comparative neurology, (1998 May 11) Vol. 394, No. 3, pp. 386-94.
Journal code: 0406041. ISSN: 0021-9967.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)

LA English

FS Priority Journals

EM 199806

ED Entered STN: 25 Jun 1998
Last Updated on STN: 25 Jun 1998
Entered Medline: 18 Jun 1998

AB The retina of the adult goldfish grows throughout the life of the animal, in part, by the continual addition of new neurons. Further, destruction of extant neurons in this tissue stimulates neuronal regeneration. In an attempt to identify growth factors that regulate both normal and injury-stimulated neurogenesis, we used organ culture techniques and tested nine peptide growth factors for their ability to modulate cell proliferation in both normal retinas and retinas with lesions. Of the growth factors tested, only the insulin-related peptides (insulin and insulin-like growth factors I and II) consistently stimulated proliferation, and this was restricted to the retinal progenitors within the circumferential germinal zone. None of the growth factors tested stimulated proliferation of rod precursors (cells in the mature retina whose progeny are exclusively rod photoreceptors) or the injury-stimulated retinal progenitors. Although the negative data are subject to multiple interpretations, these data suggest that in the retina of the adult goldfish, insulin-related peptides regulate proliferation of retinal progenitors within the circumferential germinal zone, but molecules that modulate the proliferation of the rod precursors or injury-induced retinal progenitors in the retina of the adult goldfish have yet to be identified.

ANSWER 25 OF 39 MEDLINE on STN

AN 1998034083 MEDLINE

DN PubMed ID: 9369150

TI Gicerin, a cell adhesion molecule, participates in the histogenesis of retina.

AU Tsukamoto Y; Taira E; Yamate J; Nakane Y; Kajimura K; Tsudzuki M; Kiso Y; Kotani T; Miki N; Sakuma S

CS Department of Veterinary Pathology, College of Agriculture, Osaka Prefecture University, Sakai, Japan.

SO Journal of neurobiology, (1997 Nov 20) Vol. 33, No. 6, pp. 769-80. Journal code: 0213640. ISSN: 0022-3034.

CY United States

DT Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)

LA English

FS Priority Journals

EM 199712

ED Entered STN: 9 Jan 1998
Last Updated on STN: 9 Jan 1998
Entered Medline: 12 Dec 1997

AB Gicerin is a novel cell adhesion molecule that belongs to the immunoglobulin superfamily. Gicerin protein adheres to neurite outgrowth factor (NOF), an extracellular matrix protein in the laminin family, and also exhibits homophilic adhesion. Heterophilic adhesion of gicerin to NOF is thought to play an active role in neurite outgrowth of developing retinal cells in vitro. In this study, we examined the adhesion activity of gicerin during the retinal development of Japanese quail using an antibody directed against gicerin, to elucidate the biological importance of gicerin in retinal histogenesis. Immunohistochemical and Western blot analysis showed that gicerin was highly expressed in the developing retina but suppressed in the mature retina. The aggregation of neural retinal cells from 5-day embryonic quail retina was significantly inhibited when incubated with a polyclonal antibody to gicerin, suggesting that gicerin protein participates in the adhesion of neural retinal cells of the developing retina. Furthermore, histogenesis of retina both in the organ cultures and in ovo embryos was severely disrupted by incubation with a gicerin antibody. These findings provide evidence that gicerin plays an important role in retinal histogenesis.

ANSWER 179 OF 239 MEDLINE on STN

AN 89235401 MEDLINE

DN PubMed ID: 2715677

TI Peroxisomal palmityl CoA oxidase activity in ocular tissues and cultured ciliary epithelial cells.

AU Ng M C; Shichi H

CS Eye Research Institute, Oakland University, Rochester, Michigan.

NC EY04694 (NEI)

SO Journal of ocular pharmacology, (1989 Spring) Vol. 5, No. 1, pp. 65-70.
Journal code: 8511297. ISSN: 8756-3320.

CY United States

DT (IN VITRO)
Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, U.S. GOV'T, P.H.S.)

LA English

FS Priority Journals

EM 198906

ED Entered STN: 6 Mar 1990
Last Updated on STN: 3 Feb 1997
Entered Medline: 22 Jun 1989

AB The activity of palmityl CoA oxidase, a peroxisomal enzyme, was determined in bovine ocular tissues. Significant levels of activity were found in the iris, ciliary body and pigmented epithelium-choroid but little or no activity was detected in the corneal epithelium, lens capsule-epithelium and retina. Treatment of bovine ciliary epithelial cells with clofibric acid for 72 hours in culture resulted in a several fold enhancement of palmityl CoA oxidase activity. These results suggest that peroxisomal enzymes can be induced in uveal tissues when peroxisome proliferation is stimulated by certain drugs in these tissues.

ANSWER 169 OF 239 MEDLINE on STN

AN 91071284 MEDLINE

DN PubMed ID: 2147648

TI Dual effect of ciliary body cells on T lymphocyte proliferation.

AU Helbig H; Gurley R C; Palestine A G; Nussenblatt R B; Caspi R R

CS Augenklinik, Klinikum Steglitz der Freien Universitat Berlin, FRG.

SO European journal of immunology, (1990 Nov) Vol. 20, No. 11, pp. 2457-63.
Journal code: 1273201. ISSN: 0014-2980.

CY GERMANY: Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE)
(RESEARCH SUPPORT, NON-U.S. GOV'T)

LA English

FS Priority Journals

EM 199101

ED Entered STN: 8 Mar 1991
Last Updated on STN: 8 Mar 1991
Entered Medline: 18 Jan 1991

AB The interaction between organ-resident cells from the anterior uvea of the eye and T helper (Th) cells was investigated. Cells from Lewis rat ciliary body processes (CB cells), grown in tissue culture using an explant technique, could be induced to express major histocompatibility complex class II (Ia) antigens by incubation with rat interferon-gamma. Ia+ CB cells only poorly functioned as antigen-presenting cells (APC) for a syngeneic, uveitogenic Th cell line specific for the retinal soluble antigen (SAg). Moreover, if added to an Ag-driven lymphocyte proliferation assay in the presence of conventional APC, the rat CB cells had an inhibiting effect on Th proliferation. This inhibitory activity was not species specific, since similar effects were observed with bovine and human ciliary epithelial cells. The suppressive activity of CB cells was composed of a soluble factor, as well as a membrane-associated inhibitor. The soluble activity did not appear to be related to transforming growth factor-beta (TGF-beta), since no reversal of inhibition by a neutralizing antibody to TGF-beta was found. Part of the soluble inhibitory activity could be reversed by indomethacin treatment. The membrane-associated component was trypsin sensitive, suggesting a protein molecule. After abrogation of the inhibitory capacity by trypsin treatment and fixation by glutaraldehyde, CB cells effectively presented SAg to Th cells. These data suggest that CB cells are capable of mediating both Ag presentation and inhibition of Th cell proliferation.

ANSWER 185 OF 220 MEDLINE on STN
AN 91330254 MEDLINE
DN PubMed ID: 1868519
TI Muller glia endfeet, a basal lamina and the polarity of retinal layers form properly in vitro only in the presence of marginal pigmented epithelium.
AU Wolburg H; Willbold E; Layer P G
CS Pathologisches Institut, Universitat, Tubingen, Federal Republic of Germany.
SO Cell and tissue research, (1991 Jun) Vol. 264, No. 3, pp. 437-51. Journal code: 0417625. ISSN: 0302-766X.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE) (RESEARCH SUPPORT, NON-U.S. GOV'T)
LA English
FS Priority Journals
EM 199109
ED Entered STN: 6 Oct 1991
Last Updated on STN: 6 Oct 1991
Entered Medline: 13 Sep 1991
AB Dissociated embryonic chicken retinal cells regenerate in rotary culture into cellular spheres that consist of subareas expressing all three nuclear layers in an inside-out sequence (rosetted vitroretinae). However, when pigmented cells from the eye margin (peripheral retinal pigment epithelium) are added to the system, the sequence of layers is identical with that of an in-situ retina (laminar vitroretinae). In order to elucidate further the lamina-stabilizing effect exerted by the retinal pigment epithelium, we have compared both systems, laying particular emphasis on the ultrastructure of the basal lamina and of Muller glia processes. Ultrastructurally, in both systems, an outer limiting membrane, inner segments of photoreceptors and the segregation of cell bodies into three cell layers develop properly. Synapses are detectable in a premature state, although only in the inner plexiform layer of laminar vitroretinae. Although present in both systems, radial processes of juvenile Muller glia cells are properly fixed at their endfeet only in laminar vitroretinae, since a basal lamina is only expressed here. Large amounts of laminin are detected immunohistochemically within the retinal pigment epithelium and along a basal stalk that reaches inside the laminar vitroretinae. We conclude that the peripheral retinal pigment epithelium is essential for the expression of a basal lamina in vitro. Moreover, the basal lamina may be responsible both for stabilizing the correct polarity of retinal layers and for the final differentiation of the Muller cells.

ANSWER 1 OF 1 MEDLINE on STN

AN 1999046618 MEDLINE

DN PubMed ID: 9829178

TI PEDF (pigment epithelium-derived factor) promotes increase and maturation of pigment granules in pigment epithelial cells in neonatal albino rat retinal cultures.

AU Malchiodi-Albedi F; Feher J; Caiazza S; Formisano G; Perilli R; Falchi M; Petrucci T C; Scorcia G; Tombran-Tink J

CS Department of Ultrastructure, Istituto Superiore di Sanita, Rome, Italy.. malchiodi@ul.net.iss.it

SO International journal of developmental neuroscience : the official journal of the International Society for Developmental Neuroscience, (1998 Aug) Vol. 16, No. 5, pp. 423-32.
Journal code: 8401784. ISSN: 0736-5748.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199902

ED Entered STN: 23 Feb 1999
Last Updated on STN: 23 Feb 1999
Entered Medline: 11 Feb 1999

AB Pigment Epithelium-Derived Factor (PEDF), purified from human retinal pigment epithelial (RPE) cell culture medium, is a neurotrophic factor which potentiates the differentiation of human Y-79 retinoblastoma cells and increases the survival of cerebellar granule cells. To investigate the effects of PEDF on non-transformed retinal cells, we used primary cultures of neonatal albino rat retinas, where the three principal cell types of the retinal layers (neuronal, glial and epithelial) were all present and focussed our attention on RPE cells, which are of special relevance for retinal pathophysiology. PEDF had a dramatic effect on these cells. They showed a modified phenotype, with larger dimensions, higher cytoplasmic spreading, presence of phagocytic vacuoles, development of wide intercellular contacts, and increase and maturation of pigment granules. These results suggest that PEDF may have a role in regulating RPE cell differentiation.

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     FILE 'MEDLINE, BIOSIS, EMBASE, CAPLUS, SCISEARCH, CONFSCI, LIFESCI'
     ENTERED AT 14:01:59 ON 03 AUG 2007
L1         79741 S CILIARY?
L2         15481 S AMACRINE
L3        301752 S HORIZONTAL
L4        179393 S BIPOLAR
L5        285080 S GANGLION?
L6          1596 S L2 AND L3 AND L4 AND L5
L7         29325 S L5 AND CULTUR?
L8            83 S L6 AND CULTUR?
L9             8 S L1 AND L8
L10      1050917 S EYE?
L11      4091023 S CULTUR?
L12        41765 S L10 AND L11
L13         1748 S L12 AND L1
L14          594 S L13 AND RETINA?
L15          336 DUPLICATE REMOVE L14 (258 DUPLICATES REMOVED)

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☐	L2	HORIZONTALL1	0
☐	L3	HORIZONTAL	2270592
☐	L4	L3 AND L1	184
☐	L5	BIPOLAR	163964
☐	L6	L5 AND L4	160
☐	L7	GANGLION	7691
☐	L8	L7 AND L6	158
☐	L9	RETINA OR RETINAL OR EYE	568863
☐	L10	L9 AND L8	157
☐	L11	CILIARY	9991
☐	L12	L11 AND L10	73

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